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ABSTRACT

This paper describes the evolution through three stages of a virtual distance learning training package used to train faculty in the skills and strategies needed to address distance learner needs. In 1996 two traditional face-to-face training programs on the use of compressed video equipment were delivered to 43 faculty. Interviews of participants found that many did not fully understand the needs and concerns of distance students until they themselves became distance learners. Based on the results of the first training programs the next training program required participants to demonstrate computer, e-mail, and Internet skills (using a CD-ROM tutorial) before beginning the program, and delivered training both in face-to-face and distance education modes. Participants in this program developed the requisite skills and competencies much more quickly and fully than had participants in the first programs. In 1997 a third-stage program, using a web-based interface as well as face-to-face sessions, was offered to 29 faculty. However, in this program only two faculty actively participated in the on-line portion and seven in the face-to-face training portion. It was concluded that faculty tech training requires strong administrative support and commitment, as well as financial incentives to ensure that faculty understand that their efforts to learn these new tools are valued. (MDM)

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INNOVATIVE ON-LINE INSTRUCTIONAL STRATEGIES: FACULTY MEMBERS AS DISTANCE LEARNERS

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> The most significant influence on the evolution of distance education will be not the technical development of more powerful devices, but rather the professional development of wise designers, educators, and learners.
>
> Chris Dede, 1996

Students and faculty possess strategies to survive in the traditional face-to-face classroom experience. All their lives they have been exposed to and participated in the age-old instructional face-to-face environment. With computer-based and video-based instructional environments popping up like spring flowers across the instructional terrain, teachers and learners find themselves casting about trying to make sense of the necessary strategies they need to survive in the new virtual classroom.

How do you have a class discussion on-line? How do you provide instructional support virtually? How do you create active learning environments that are engaging and encourage development of a virtual community of learners? As these questions have developed and evolved for us over the last three years, so have our training efforts. This paper will describe the evolution of a virtual training package, describe the three designs employed by the authors over the last three years, and define the differences in the competencies developed by training participants across three different training designs. Finally, we will describe the level of technology implementation all participants later employed in their instructional delivery.

THE EVOLUTION OF THE VIRTUAL TRAINING PACKAGE

With the acquisition of video teleconferencing and a statewide telecommunications network, the authors found themselves in the position of being required to design and deliver distance learning faculty training. This effort had to provide faculty with strategies to survive in a compressed video instructional environment. Between 1995-1998, the authors have evolved from a traditional design of training for compressed video delivery to an active, competencies-based virtual learning environment which stresses the use of new computer technologies to develop learning communities. During the past three years, the evolution to a virtual training environment occurred for a number of reasons. First, we were busy developing our own skills in computer file management, instructional design of technology-rich content, and discovering new tools and their possible applications in learning environments. Second, the faculty began getting better computer resources and began discovering new tools on their own. Finally, the exponential growth in technology capabilities in a few short months transformed what was possible for distance learning delivery.

THE FIRST TRAINING

In the summer of 1996, the authors delivered two face-to-face traditional training programs to 43 faculty members at a four-year, state-supported, regional university. The training content included sessions on how to negotiate compressed video equipment, how to troubleshoot minor technology problems such as mic levels and camera shots, examples of backup plans in case of technology failure, tips and rules for effective graphics, internet activities to build searching skills, and strategies to address distance learner needs.

Each faculty member who participated in all the face-to-face sessions during 1996 received a cash stipend of $1500, but were not required to complete assignments. Participants were strongly encouraged to complete the assigned tasks so they could develop the necessary skills and competencies.

During the training the authors observed that a majority of faculty (97%) successfully developed strategies to negotiate the compressed video classroom. However, the trainers observed that a majority of the participants were not completing most of the recommended assignments and therefore were not developing competencies necessary to deal with the issues of distance in the compressed video environment (81% did not use e-mail for group communication, 81% did not try to transfer files using e-mail attachments, 65% did not create a backup plan for technology failure, and 65% did not exhibit team building skills with their site facilitators during training). Their decisions to avoid e-mail and file transfer involved their lack of computer skills and the complexity of the tasks.

The faculty members participating did not have adequate desktop resources at the time of the training; only 6% of the participants actually had a pentium computer and were using Windows '95 operating system. As trainers, we did not have access to Windows '95 either, nor did we have competencies in using a POP3 e-mail account. This meant attachments in e-mail required a 15 step process, carried out in the Unix environment. It's no wonder only 19% of the participants were willing to tackle the attachment competency!

Some of the faculty exhibited behaviors that were not conducive to a positive learning environment. Those participants who possessed more computer-based skills were often caught posturing about their abilities in front of participants who had very low levels of computer based skills. This behavior did not encourage growth in those lacking skills, but only silenced them and discouraged them from asking questions. This became apparent later when participants would engage us privately and explain they didn't understand what their peers were talking about. A recurring comment was "I didn't even know what questions to ask."

Neither of us had received formal training as trainers. We became trainers because we possessed the knowledge the faculty needed to deliver compressed video instruction. This knowledge was acquired from attending four national distance learning conferences, participating in listservs about distance learning, and doing web-based research about distance learning. We also had no training as educators, although we had both had experiences as teachers and tutors in other professional settings.

FACULTY REACTION TO THE FIRST TRAINING

Because many of the faculty did not have important computer-based competencies, they regularly complained about our heavy use of "jargon" during the training. We tried to be diligent about explaining our terms, but the faculty members remained annoyed at the heavy use of "foreign terms."

The faculty openly stated they did not understand why they were expected to complete assignments and projects to prepare for their distance learning delivery. Many of the faculty informed us they would not be using many of the tools we were asking them to learn. It seemed they felt indignant at the thought of being told how to manage a successful distance learning class. Many of the faculty asked if it would be OK if they "just used the blackboard" instead of the document camera. Several openly refused to use any tools other than the cameras.

When we asked the participants to evaluate the training effort, those with high levels of computer-based skills openly suggested that we split future groups according to skill levels so they wouldn't have to waste time in training while others "learned the basics." All of the participants agreed they needed more hands-on time to learn the necessary skills during training.

OUTCOMES OF THE FIRST TRAINING

In the following semester after training, we interviewed the training participants to determine how their distance learning class was going, problems they had encountered, or solutions they had devised. Although student needs and concerns were addressed during the training, the faculty continued implementing traditional tools (U.S. surface mail and phone) to deal with student questions and assignment delivery between students and faculty.

OUR CONCLUSIONS ABOUT THE FIRST TRAINING

We concluded from this first training effort that participants had to possess significant computer-based skills when they started the face-to-face training component. We felt if faculty came together with a common set of computer skills, we could reduce the possibility of "posturing". We believed that this would also reduce the participants' frustration with the use of computer "jargon" when discussing the instructional tools.

We realized that faculty could not fully understand the needs and concerns of distant students until they themselves became distance learners. We also realized we could not expect them to know how to create active virtual learning environments until they experienced these types of environments themselves. Passively sitting in a compressed video room receiving knowledge would not transform them!

We realized for faculty to implement technology they had to be capable of assisting their students with technology use. For this to be possible faculty had to possess the following skills:

- Use a POP3 email account
- Possess World Wide Web searching skills
- Understand and utilize good graphic guidelines
- Successfully transfer files using email
- Use computers for group communications
- Utilize multimedia applications to deliver content

- Able to download software and files from the
- World Wide Web
- Implement computer conferencing tools
- Create and use a web page to house course content and related resources

REDESIGNING FOR THE SECOND TRAINING

Based on our observations that faculty seemed to fail to understand the scope of distant learner needs, and could not seem to envision the possible applications of the tools we exposed them to, we designed a virtual training environment that would require the participants to work through the training materials as on-line students. Dede (1996) argues that the development of "immersion-based" learning experiences is the new rhetoric for distance learning instructional delivery. Prior to the development of today's technology, instructors were left with little option other than being a "sage on the stage." The technologies available today allows instructors to literally send learners on a virtual tour of content and information, serving as a guide in the process. The creation of an immersion-based learning experience was the type of environment we were attempting to model as we re-designed the training.

The new training was designed in short modules within larger courses. Each module either taught participants about a new tool, asked them to apply a tool just learned, or asked them to develop a strategy for implementing the new tool. The training required that faculty develop specific computer-based competencies in order to move forward in the training content. The majority of the content, and the structure for the environment was placed on a CD-ROM that helped faculty develop competencies in

1) use of POP3 e-mail accounts,
2) use of attachments to receive, grade, and return student work,
3) locating and using web-based resources for instructional purposes,
4) use of computer conferencing tools to increase communication between students and instructor and between students,
5) computer file management,
6) designing comprehensive distance learning syllabi,
7) downloading software from the World Wide Web,
8) designing, creating, and launching instructional web pages, and
9) utilizing videoconferencing for instructional purposes.

Extensive help pages were available within the CD-ROM, as well as links to web-based resources where participants would gather or assess information related to training and their specific disciplines. Group communication would take place in other web-based environments where participants could discuss their on-line learning experiences. We created this training environment as a model to help faculty realize what was possible in the delivery of on-line distance learning programming.

Because of the frustration we observed in faculty during the first training due to their lack of appropriate computer resources, we implemented a process whereby the administration was informed of the faculty resource needs many months prior to the training sessions. This assured that the faculty identified as participants in training would receive the necessary resources (a pentium computer, Windows '95, Netscape access).

THE SECOND TRAINING

Eighteen faculty received the CD-ROM three weeks prior to the face-to-face sessions. They were informed that in order for them to receive the $1500 stipend, they must complete all assignments and projects of the training, and attend all of the face-to-face sessions.

Faculty had to work on developing the first eight competencies prior to face-to-face sessions with the trainers by working through the various modules on the CD-ROM. Faculty had to request and receive support on-line, just as distance learners must. Because of the new training design, we experienced faculty in a very different role - as distance learners. Suddenly we had faculty members in extreme distress. Calls and e-mails started coming in from faculty who had never downloaded software from the web, never input server information into a POP3 e-mail account, and never set up accounts in computer conferencing environments. They quickly began realizing their lack of skills and were in trauma.

Our approach to these faculty members in trauma was to reassure them, stay connected to them, provide them just the information they needed to move on, encourage them, and applaud them when they completed assignments that revealed newly developed skills and competencies. We paid close attention to the learners' needs, providing on-line support, and if that didn't work, phone calls and face-to-face visits to help them through a particular problem.

Gray (1997) identifies three phases faculty must go through in developing distance learning delivery competencies:

1) move beyond the fear of computers, and use computers as productivity tools,
2) use computers as delivery systems, and
3) use computers as cognitive tools.

We have described the first phase of helping them work through their fears. By requesting the participants use Word '95 to create their syllabus, and use e-mail to deliver and receive group communications, as well as turn in their assignments, we helped them to begin using computers as productivity tools.

The training helped the faculty members move into the second phase by using the CD-ROM to deliver content, as well as teaching them, on-line, how to use Powerpoint to deliver content in their own classes. The third phase, using computers as cognitive tools was modeled by requiring faculty to explore resources on the web, determining credibility of resources, assessing the user-interface design, layout, or structure of a web site, and discussing these learning experiences in the on-line group communication areas.

When the face-to-face sessions occurred, the mood of the participants was of a cohesive learning group. For three weeks prior to coming together, physically, as a group, they had observed, read about, learned with and assisted their peers in developing the required competencies, in a virtual environment.

The first and second year groups differed significantly in their demeanor and attitude toward one another during the face-to-face sessions. Where the first year group had been competitive, and

isolated from each other, as well as unable to envision the possibilities, the second year group was more connected to one another, willing to share information as equals, and were constantly asking specific, application related questions. The second year group aggressively used the jargon, came up with specific course-related applications with the tools they were introduced to, and openly exhibited a trust and camaraderie with us in attempting to achieve a common goal.

FACULTY REACTION TO THE SECOND TRAINING

The faculty members' critiques of the second training differed significantly from the first training group. They suggested we provide a clearer outline of what was expected of participants and encouraged us to plan a group orientation prior to future participants beginning the on-line training portion. We used an authoring tool that allowed us to restrict users from printing material from the screen and the participants commented they wished they had been able to print the material off the CD-ROM.

They openly discussed the significant level of skills and competencies they had developed during the on-line training portion and were genuinely pleased with their newfound skills. Ninety-four percent were using a POP3 mail account. Eighty-three percent had developed significant web-searching skills, and 94% felt competent with computer conferencing tools. Eighty-three percent were able to download software and files off the world wide web and 89% could successfully transfer files using e-mail attachments. Another surprising outcome of the training was the ways in which participants immediately applied what they had learned to other areas in their professional lives. For example, one participant wrote to us and said "*I found myself engaged in yet another distance learning conversation with a collegue at [another institution]. As a result of this training, I can't tell you what a whole new world this has opened up for me as well as windows and doors of opportunity.*"

Another faculty member reflected on the training experience by saying "*Effective distance educators quickly learn that for the DL experience to be valuable, students must be led (coerced, if necessary) into a much more active stance than is often the case in the typical classroom. It has been a challenge to master these technological resources, and it has been an even greater challenge to attempt to harness them in pedagogically effective ways. But, interestingly enough, my distance learning strategies are beginning to pop up in my other teaching responsibilities.*"

OUR CONCLUSIONS ABOUT THE SECOND TRAINING

One of the things we learned from the training experience with the group working through the CD-ROM was that the CD-ROM was too restrictive. In other words, we couldn't update the training information as new technologies or web resources became available. The only way we could update the information was to re-burn new disks. We had to resort to e-mail, phone, and print materials to distribute corrections, additions, or changes in training content.

Having the participants fully engage in the use of computer conferencing tools to communicate with each other and the trainers allowed us to more fully understand the computer conferencing component in distance learning instruction. The faculty seemed very stiff, and oftentimes uncomfortable in their responses to the content and their learning experiences. However, this forum afforded an environment where we, as guides, could applaud them for their insights or eureka's, redirect the discussion, or encourage more exploration into the topic. This allowed the

participants to gain a richer understanding of the possible applications for instructional use. We learned that the new rules for communicating in this environment had to be made visible to the participants.

Smith (1992) suggests that there are three components to a successful collaborative virtual learning environment which bind the learners as a cohesive group. Dede (1996) identifies these three components as "'social network capital' (an instant web of contacts with useful skills), 'knowledge capital' (a personal, distributed 'brain trust' with just-in-time answers to immediate questions), and 'communion' (psychological/spiritual support from people who share common joys and trials)^Å"(p. 17). The virtual environment permitted us to make these three components viable, and by applying the conferencing tools along with web resources, help pages, and just-in-time 24/7 support, we were successful in providing an environment which allowed participants to come together as a cohesive group.

OUTCOMES OF TRAINING

In the semester immediately following the second training we interviewed faculty from both first and second year training groups. One year after their training, the first group revealed only 23% were implementing the transfer of files via e-mail (up from 19% at the end of training) and only 26% were using e-mail for group communication (up from 19% during training). Only 16% of the first group were utilizing POP3 e-mail accounts.

The second year group were continuing to implement significant amounts of technology. Seventy-two percent were using a web-based POP3 mail account. Fifty-six percent have instructional web pages. Only 19% of the first year group have instructional web pages. Fifty-six percent of the second training group implement computer conferencing in their classes. Sixteen percent of the first group are using conferencing tools. Clearly, these percentages indicate that the second training group moved through the development stages Gray (1997) identified much more rapidly than did the first group.

REDESIGNING FOR THIRD TRAINING

Because of the bounded nature of the CD-ROM, we decided to redesign the training again and move it to the web where it could easily and quickly be edited when changes were necessary. This allowed us to easily update, rewrite, and redesign the training anytime. Additionally, we made some minor editing and design changes, added a chat room, changed from using a computer-based mail system (Netscape Mail) to using a web-based mail system (Yahoo! Mail), and altered some module and course names.

THE THIRD TRAINING

Once we designed the web-based training we offered it to a group of faculty in another state. In December 1997, the web-based training was utilized by a four-year, state supported liberal arts university.

Twenty-nine participants received training packets three weeks prior to the face-to-face training sessions. Only two actively participated in the on-line portion of training, and seven showed up for face-to-face training. Only 43% established web-based e-mail accounts, and 29% percent

successfully transferred files using e-mail attachments. Twenty-nine percent developed competencies in using computer conferencing tools, and only 43% designed a backup plan.

Three of the participants were openly hostile toward us regarding the amount of work they were expected to accomplish in this training. Like the first group, this group exhibited behaviors that were not conducive to a positive learning environment. However, after the third day of face-to-face training participants began working in groups, and over 50% began showing signs of becoming a cohesive unit.

The third group was significantly different in two ways. First, they were not required to participate in the training, and second, they did not receive a stipend for participating. These differences were the only reasons we could determine the significant difference we discovered in implementation of on-line tools between the two groups who participated in the virtual training. Given the extensive time required of faculty to develop and implement these skills, we feel the faculty who were not rewarded monetarily did not feel a significant commitment had been vested by the institution, and therefore were unwilling to commit to the significant learning required of them.

CONCLUSION

The Commission on Institutions of Higher Education has approved the North Central Association of Colleges and School's guidelines for distance education, which, in part, states "the institution provides appropriate faculty support services specifically related to distance education", and "the institution provides appropriate training for faculty who teach distance education programs." Institutions who offer distance learning programming are expected to address, in their self studies and/or proposals for institutional change, the above expectations. Additionally, the guidelines state "the institution ensures that students admitted possess the knowledge and equipment to use the technology employed by the program and provides aid to students who are experiencing difficulty using the required technology."

From our training experiences, and our later observations of faculty implementing web-based tools, we have learned that student technology support needs grow exponentially. Given that institutions will have to document that not only are their faculty being trained and supported in the development and delivery of distance learning programming, but also that faculty are able to support student needs as they relate to technology use and implementation, it is critical that training programs which encourage immersion in content and tools, and engender cohesive learning environments be developed.

Every faculty group we have interviewed after participating in training has expressed concern over faculty compensation. Development of the necessary skills, and implementation of new technology tools into classes takes inordinate amounts of faculty members' time and energy. Faculty need strong signs of administrative support and belief that distance learning is a long-range endeavor. It appears that institutions' commitment of financial incentives reassure faculty that their efforts to learn these new tools are valued.

Both groups one and three exhibited the same behaviors; resistance to learning required technology skills, resistance to working as a cohesive group, and the inability to see the

possibilities for creating viable virtual learning environments using these-technologies. When we queried all three groups about their technology implementation after training, we found that groups one and three remained below group two implementation levels.

We are currently redesigning the training content and will deliver the next training using a web-based courseware.

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